

the

# Maryland natural resource

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**The Maryland Natural Resource**  
*...Your guide to recreation &  
conservation in Maryland*

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*Welcome Summer*  
Tammy McCorkle

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Caroline Blizzard

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# THE COMMON GOOD



Richard Lippenholz

As the 2014 chair of the Chesapeake Executive Council for my third and final term, I had the honor of hosting Bay Program partners in Annapolis for the landmark signing of a new *Chesapeake Watershed Agreement* in June. EPA Administrator Gina McCarthy, Delaware Governor Jack Markell, Pennsylvania Governor Tom Corbett, Virginia Governor Terry McAuliffe and Washington, D.C. Mayor Vincent Gray were among the program partners who joined me in committing to a new set of goals that

will advance restoration and protection of the Bay, its tributaries and surrounding lands.

It was a momentous occasion that resulted in the most inclusive, collaborative, goal-oriented Agreement the Chesapeake Bay Watershed has ever seen. The new Agreement not only addresses our continuing water quality and land use challenges, it also confronts critical emerging issues, including environmental literacy. Perhaps most importantly, it builds upon the strength of our diverse citizenry — including our youngest stewards — calling to action the nearly 18 million people that call our watershed home.

Comprised of 10 interrelated goals and aligned with strategies developed by federal agencies in response to President Obama's Executive Order on Bay protection and restoration, the Agreement is both a consensus and a commitment. As we march together toward a common goal, we will be that much stronger and more effective in achieving a restored, healthy and economically vibrant Chesapeake.

Developed through an extensive collaborative process over many months, citizen, technical and local government stakeholders were all crucial in creating the Agreement. Indeed, thousands of citizens from across the region provided input

that directly influenced the Agreement's content, resulting in the addition of key issues like toxic contaminants and climate change. It also marks the first time that the Bay's headwater states of New York, West Virginia and Delaware have pledged to work toward restoration goals that reach beyond water quality.

Maryland has exceeded its milestone goals for stormwater and septic improvements by completing wastewater treatment plant upgrades in each of the past two tracking periods and increasing cover crop plantings by 200% since 2006. Advances supporting this work include: development of *BayStat*, an online tool used by managers and citizens to track and target restoration; creation of the *Chesapeake and Atlantic Coastal Bays Trust Fund*, which has directed \$256 million to support local restoration projects that reduce non-point source pollution from entering the Bay; passage of first of its kind no-net loss of forest legislation; adoption of a plan to reduce greenhouse gas emissions 25% by 2020.

Together with the citizens of this great watershed — farmers, students, conservationists, business and community leaders and faith-based organizations — we are taking the steps needed to turn our words to deeds to convert this new Agreement to an improved Chesapeake Bay. And I believe we are in the best position yet to move the Chesapeake Bay to a tipping point — the point where the tide of restoration will finally have been turned.

Martin O'Malley  
Governor

# THE NATURE OF THINGS

Forward-looking. Results-oriented. Creative. Sustainable. The new Chesapeake Bay Watershed agreement, which was signed in June in Annapolis, is both responsive and proactive. It is comprised of 10 interrelated goals that are linked to measurable and time-bound outcomes.

As chairman of the Principal Staff Committee, I was proud to help lay the groundwork for this plan that works across jurisdictional boundaries — federal, state and local levels — to reduce pollution entering the Bay and protect living resources and their habitats.

Since the signing of the first Chesapeake Bay Agreement in 1983, our partnership has expanded. Our efforts and priorities have evolved along with our knowledge and experience. New agreements in 1987 and 2000 added more specific goals, commitments and deadlines for water quality, living resources, public access, population growth and development, public information, education and engagement.

When we fell short of our major commitment to reduce nitrogen and phosphorus by 40 percent in 2000, we developed tributary teams and strategies to shift focus to the waters that feed into the Bay — forerunners of our current watershed implementation plans — our blueprints for Bay restoration.

The 2000 agreement celebrated the participation of the headwater states in our water quality commitments. We have benefited from greatly increased participation from these states, as well as local governments, citizens, non-profits and scientists. Science guides our restoration efforts and measures our progress. The 2000 agreement also noted that failure to remove the Bay from the impaired waters list would result in a *Total Maximum Daily Load* — which it did.

The 2010 TMDL and the subsequent presidential executive order led to conversations about a new agreement — one that would better integrate partnership efforts, address emerging challenges, set clearer goals and specific outcomes to measure progress, incorporate the latest science and management techniques, and create greater flexibility and improved accountability for partners.

And here we are.

At the Executive Council meeting in June, we celebrated three decades of hard work and history, and recommitted to the future of our restoration efforts. We signed a new Agreement that holds us accountable for achieving our management strategies — to which Maryland and its partners are fully committed. These strategies will provide for unprecedented levels of transparency, accountability and public engagement.

We also announced \$2.6 million in additional funding for Bay-related projects in Maryland, including \$250,000 in grants to non-profit organizations for infrastructure improvements and community outreach through the Trust Fund.

Additionally, we are partnering with the EPA and Chesapeake Bay Trust to provide an additional \$1.6 million in Watershed Assistance Collaborative funding to help local governments meet their milestones. And because educating our young citizens is possibly the most important thing we can do, again in partnership with the EPA, we will be directing more than \$750,000 over the next three years for teacher professional development to further support our environmental literacy commitments.

Armed with this Agreement and working across federal, state and local levels, we move forward with new energy to restore the Bay. The future is bright.

Joseph P. Gill  
Secretary



Kristen Peterson





Stephen Badger

# This Land is Your Land

## Connecting people and places

By Kristen Peterson

Maryland's land tells a rich historic narrative. Shots were fired at Fort Frederick during the French and Indian War. The first stone for the B&O railroad was laid in 1828 by 90-year-old Charles Carroll — one of the signers of the Declaration of Independence. In the 1950's, cities witnessed an exodus as citizens headed toward the white picket fences of suburbia. And the tale of our land is one still unfolding. Today, our vibrant landscape continues to be shaped... by design.

Maryland has a well-earned reputation as a leader in land conservation, with 475,000 acres of land managed by DNR as a part of the public trust. Conserving and planning for a vast network of connected

open spaces, forests, parks, playgrounds and trails does not happen in a vacuum, nor does it happen by chance.

### So, how does it happen?

Every five years the State prepares a *Land Preservation and Recreation Plan* in cooperation with local governments and their complementary plans. Essential to managers and planners, it qualifies the State to receive federal land acquisition funding and offers a comprehensive "to do" list for expanding outdoor opportunities, inspiring stewardship and protecting our natural and cultural resources.

The most recent plan, approved by the National Park Service in April of this year, charts a course for outdoor re-

creation and land preservation through 2018. The result of a year and a half of research and development, the Plan is the most collaborative, citizen-oriented set of strategies for State land Maryland has produced to date.

Project goals for the next five years include expanding trails, creating new picnic areas, upgrading visitor centers and other facilities, and improving access to water and nature spaces. The projects are designed to meet the ever-changing needs of our citizens and visitors, while protecting our living and natural resources.

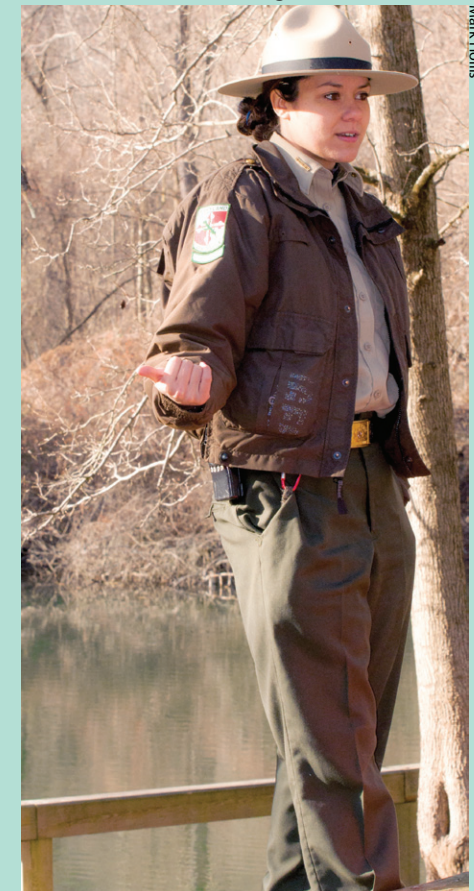
"Our citizens are the reason for this Plan," says John F. Wilson, DNR's Associate Director of Land Acquisition and Planning, who led its development.

"So, we went through an extensive public outreach process to ensure we gained valid, usable feedback from residents across Maryland."

The information gained from the outreach — which included surveys by phone and online, and multiple citizen stakeholder meetings — resulted in four key focus areas: coordination among local, county and State planning efforts; promotion of health, economic and environmental benefits; access to water and land-based recreation for all citizens; and connections between trails and public lands to the places where people live, work and play.

### Working together

The DNR Land team worked with their colleagues across the Department, as well as other State agencies, stakeholders, and local and non-governmental organizations to develop the Plan. Moving forward, DNR will continue to collaborate with federal, State, county and local officials to review opportunities and determine where and how to invest through 2018.



Mark Hollis

Park Ranger Alyssa Henn guides a group hike at Patapsco Valley State Park.



DNR

Tuckahoe State Park hosts a race.

Early in the process, DNR assessed where recreation areas, land and water-based natural resources and trails had gaps. By sharing this information with its partners, DNR can help coordinate long-range planning efforts. For instance, when a county bike path comes close to overlapping with a State trail, the State can work with the county to connect the two for a more extensive and accessible trail network.

"Planning in a vacuum does not benefit anyone," says Adam Bossi, Natural Resources Planner, who hopes to meet with every county planning or parks and recreation office in Maryland by the end of the summer. "County and local governments, as well as DNR, provide many diverse parks, natural areas and opportunities for nature-based recreation. By working in tandem, we can improve public recreation and natural resource conservation projects for the benefit of Maryland residents and visitors."

### Getting the word out

During the public outreach process, lack of time was cited as a top reason for not participating in outdoor recreation more frequently. Another key reason is that people aren't always aware of the programs and facilities offered.

"In today's day and age, we are competing with television, the internet, social media and mobile phones," says Wilson. "It's ironic that all of this technology that is supposed to save us time,

appears to be having the opposite effect. Regardless, we need to let the public know about all of the great resources that are available to them. It's time to put down our smart phones and get excited about the outdoors!"

Ergo, part of the Plan addresses the need to more widely promote these opportunities and the vast economic, health and environmental benefits.

### Economic Benefits

According to the Outdoor Industry Association, recreational activity generates \$9.5 billion in consumer spending, 85,000 jobs and \$686 million in State and local revenue in Maryland. This information is substantiated by a Maryland State Parks study, which reports that with nearly 10 million day users and one million overnight users the economic impact of the State's extensive Park network is \$650 million annually.

"Our parks and public lands must be seen to be as much of our infrastructure as our water and sewer lines," says Wilson. "These resources benefit not just our health, the environment and help create the next generation of stewards, they also contribute big money to the State."

"Every federal, State and local government has a finite budget that must be balanced," continues Wilson. "Each government leader has to make hard choices on where to spend the funding. While historically, outdoor recreation and land protection has been seen





A section of the Appalachian Trail at Gathland State Park

Tammy McCorkle



Horseback riding at Patapsco Valley State Park

Stephen Badger



Visitors enjoy the view at Washington Monument State Park.

Stephen Badger

as an accessory, I think the O'Malley-Brown administration has done a nice job of categorizing it as it deserves: as a necessity."

#### Health & Well-being Benefits

With physical and mental health issues all over the news these days it makes sense that the Plan incorporates a focus on the health benefits of outdoor recreation. Obesity rates are climbing among both children and adults, which can increase the risk of developing chronic diseases, including heart disease, diabetes, stroke and cancer. Many studies have confirmed that spending time outside can combat these risks and lead to enhanced physical, social and mental well-being.

One program making its way through the national medical community even prescribes nature and parks to patients: Park RX. The goal of this movement is to create a healthier population by strengthening the connection between the healthcare system and public lands across the nation.

#### Environmental Benefits

Beyond the many obvious environmental benefits of outdoor recreation and natural

resource protection, DNR is kicking it up a notch to advance "green" efforts through interagency planning. In conjunction with Maryland Departments of Transportation, Economic Development, Planning, and Environment, DNR is also working to revitalize communities in a sustainable manner.

This may include communities that conserve resources, provide green spaces and parks for recreation and agriculture, offer many options for transportation and use natural and cultural resources wisely for future generations.

#### Accessibility for all

DNR is committed to improving public access to land and water-based recreation for everyone. With close to 500 public water access sites — places where boats, kayaks, canoes can be launched or retrieved — Maryland has more public access than any other jurisdiction in the Chesapeake Bay Watershed. Still the public need is ever-expanding and DNR is working to add water access sites at several State Parks.

"We want to ensure that all public access is planned and developed responsibly and with consideration for the welfare of natural and cultural resources," says Lisa Gutierrez, Director of Maryland's Public Access/Water Trails and Recreation Planning Program, who wrote the Water Trails section of the plan. "Currently, Maryland has over 700 miles of designated water trails and we want to create new ones. These trails and water access sites can introduce people to water recreation and highlight the importance of environmental stewardship to protect these areas."

#### It's all about connecting

From the Avalon Super Loop in Patapsco Valley State Park to Maryland's portion of the Appalachian Trail to the C & O Canal Towpath trail, Maryland trails come in all shapes and sizes and meet the needs of a wide range of users. Our diverse visitors include equestrians, hikers and the physically challenged, who all contribute millions of dollars to the State economy.

A connected trail network and a desire for more trails were identified as high priorities for Marylanders in the public outreach process. Over the next five years, DNR will work to better connect our public lands and trails to the places where the people of Maryland live, work and play. By ensuring they have trails nearby, DNR hopes to also address the number one challenge of survey respondents in participating in outdoor recreation — a lack of time.

With this priority in mind, the Plan contains a separate trails section for the first time — written by a committee of 15 people representing a broad range of trails-related perspectives, priorities and expertise — that will provide guidance and investment strategies to support the many needs of trail users.



Birding at Chapman State Park

Kerry Winted

"Maryland has more than 1,000 miles of trails that meet the recreational needs of many different users and showcase the rich variety of landscapes that make our State a miniature United States," says Steve Carr, Land Trails Planner at DNR who led the Committee. "From ocean to mountain, we have it all. I look forward to the work that DNR will accomplish over the next several years to improve our trails system."

#### Results on the ground

By assessing the State's resources, taking into account issues and trends, and incorporating extensive public input, DNR has produced a document that will serve as an invaluable tool in planning for public outdoor recreation and land preservation. Our land — rich in forests and farms, wildlife habitat, recreation and tourism, culture and history — is the foundation of our State's economic and social prosperity.

By taking informed action today, we can ensure tomorrow's Maryland maintains this balance of richness and prosperity. ■

[dnr.maryland.gov/land](http://dnr.maryland.gov/land)

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More and more State Parks host First Day Hikes on January 1, providing families guided access to trails even on what can be cold winter days.



Observing nature in Baltimore

Renee Sausbury



Hiking at Greenbrier

Paula Mansfield

**Park RX** Robert Zarr, MD, MPH, FAAP is a board-certified pediatrician in Washington, D.C. for Unity Health Care, Inc — the second largest federally qualified health center in the U.S. He leads the D.C. Park Prescription Program (DC Park Rx), which prescribes nature to prevent and treat chronic disease. Since July 1, 2013, more than 550 patients have been prescribed a park. Park Rx has recently been expanded to all of Unity's health centers, which collectively serve more than 100,000 patients with over 500,000 visits per year.

"We are using Park RX to combat chronic disease," says Dr. Zarr. "This program has been well received by both patients and doctors alike. Our research has already shown that every child prescribed a park will spend 22 more minutes being physically active, and six more days per year in a park for at least thirty minutes. We are literally turning people inside out — that is inside people into outdoors folks, and we're the healthier for it."



# Newtowne Neck

## A slice of history

By Geoff Carton, Kathy Ciolfi, Scott Lawrence

Declared by 19th century Jesuit Priest Father William Treacy, “one of the most hallowed spots on this continent,” Newtowne Neck State Park and the adjacent St. Francis Xavier Church are rich with history closely tied to the founding principles and struggles for the independence of our nation.



St. Francis Xavier Church

### Early history

Archaeologists discovered evidence of habitation on Newtowne Neck dating back as early as 4000 BC. The Neck was occupied by the Piscataway tribe, who largely relied on fishing and raising a humble crop of beans, maize and tobacco. Writings and archaeological evidence indicate that the European and Native American people shared the land for a short time after the Europeans arrived early in the 17th century.

### Maryland beginnings

In 1640, Leonard Calvert, the first Proprietary Governor of Maryland, originally granted Newtowne Neck to William Bretton, the first clerk of the Council of the Lower House of the Maryland Assembly. He was also a planter, *Burgess* (legislator), lawyer, judge, even a coroner. After Bretton’s acquisition, Newtowne became the first

established town outside the confines of St. Mary’s City.

Jesuit priests began activities in the area the same year Bretton acquired the Neck. Mr. Bretton, a staunch Catholic, donated land to Jesuits in 1661 for a church and graveyard. Father Henry Warren purchased the 700-acre Newtowne estate in 1668 for 40,000 pounds of tobacco. The Jesuits ministered to the local population and to people many miles away who were sick, elderly or too far away to travel for church.

### Religious turmoil

Maryland was considered a bastion of religious freedom, and early on, Catholics and Protestants coexisted, though with some friction. While Maryland was well ahead of other colonies with respect to religious tolerance, things changed after the Orange Rebellion of 1688, when Protestants ultimately banned public worship by Catholics. This intolerance grew, culminating with the Maryland Assembly passing a law in 1704 to prevent the growth of Popery. In essence, this re-stricted Catholics from openly practicing their religion and made it illegal to maintain churches and schools. All Catholic public worship and private education at Newtowne Neck effectively ceased.

After the closure of the chapel in 1704, worship by Catholics could only be conducted in private homes. Around this time, a chapel was attached to Newtowne manor to allow worship in compliance with the law. As suppression relaxed, a new church was built about a half a mile from the site of the original.

Built in 1731, it is the same church that holds services today and is perhaps the oldest active Catholic Parish in the nation. A large brick manor house was also constructed at this time. Although it no longer exists, its foundation was located and partially excavated in the early 1980s.

Despite the struggles of daily life and renewed religious persecution, the residents of Newtowne appeared to lead a peaceful life during the mid 1700s. This lifestyle continued even with the onset of the Revolutionary War and British troops moving along the Potomac River.

### Wartime and renovation

Local folklore tells of the Manor being ransacked by British troops. Father Treacy wrote that the Manor at Newtowne, “had its peace disturbed by red-coated soldiers who sometimes knocked in its doors with the butts of their villainous guns.” He also noted after each raid the food cellars needed to be replenished and the manor house repaired.

However, as soon as circumstances allowed, the Fathers opened the Manor “to heroes who fell wounded in the cause of their country” as a temporary hospital for the soldiers of 1776. There is no indication in his writings of how often the “red-coated” soldiers invaded the Manor.

It appears that the manor built in 1731 was damaged beyond repair (presumably by the British during the American Revolution). A new house was erected in 1789, which still stands today.



The current Manor House (right) was renovated in 1816, possibly a result of British actions during the war; one can clearly see that the roof had been raised and updated to its current style.



Recovered munitions

During the War of 1812, the British again disturbed the peace of the area — no public service was permitted at the church. On July 19, 1814, a detachment of British troops landed on Newtowne Neck to march on Leonardtown.

The Civil War seems to have affected the area to a lesser degree. Beyond a reference in the Eric Mills book, *Chesapeake Bay in the Civil War*, that an expeditionary force of 4,500 assembled in Newtowne in preparation for a raid



Scott Lawrence

on the Eastern shore of Virginia, little else is known.

### World War II to present day

The State of Maryland acquired the entire peninsula, except the church and the manor house, in 2009. The land was purchased to preserve the area’s rich natural, cultural and historical heritage. In January of 2012, the property’s military significance became even more apparent with the discovery of several items of World War II-era *ordnance* (artillery) within the park.

It has now been established that during the Second World War, a gate was erected at Newtowne and guards barred access to the area. Nearby residents heard firing of large guns, but did not learn until later that testing of a top-secret weapon occurred there.

Between 1942 and 1947, testing of the *variable time fuze* occurred on the Neck

— a proximity fuze that caused a munition to detonate as it approached its target. This device helped neutralize German rocket attacks on London and Japanese kamikaze attacks in the Pacific, and was credited by General George Patton with the winning of the Battle of the Bulge.

The Navy relinquished the property in 1947, after which the Corporation of Roman Catholic Clergymen leased the majority of it to individuals for farming before the State purchased the land.

Upon unearthing the facts in 2012, the Neck was closed and the U.S. Army Corps of Engineers conducted an exhaustive study to determine the nature and extent of prior military use. The Corps determined that the ordnance was inert test artillery rounds containing no explosive material, and therefore was not a danger to the visiting public.

The park — including its 776 acres of woodlands, wetlands and agricultural fields, and more than 7 miles of Potomac River shoreline in St. Mary’s County — reopened this year for visitors’ enjoyment.

The history of Newtowne Neck State Park tells the story of a landmark that has survived both religious persecution as well as fierce, famous Maryland battles. In addition to its rich past, the Park also offers the opportunity to hike, fish, paddle or simply relax within this scenic Southern Maryland gem. ■

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# Fightin' Phrag

## A field ecologist's notebook

By Kerrie L. Kyde



Alan Eckhart

Sometimes, no matter how carefully we plan, things don't work out quite as smoothly as we'd like. And so it was that I found myself with two colleagues, stuck at the end of a Calvert County power line right of way with malfunctioning equipment, unable to complete the work we had set out to do.

We had come to one of the most beautiful freshwater marshes on the Western Shore in Parkers Creek Natural Area to remove an invasive plant that was slowly taking over the marsh. The Area encompasses about 3,000 acres of forests and marsh. DNR and the American Chestnut Land Trust (ACLT) each own acres of land here. ACLT manages the entire property, which supports populations of nine uncommon and rare plant species.

Beaver and muskrat swim in these waters. A globally rare tiger beetle makes its home here. A network of hiking trails winds through the steep, moist forested ravines and sandy uplands of the property. ACLT leads guided paddling trips from the creek's mouth at the edge of Chesapeake Bay up into the marsh.

Late summer at Parkers Creek presents a riot of color, with pink and white hibiscus and creamy buttonbush attracting tiger swallowtails and other pollinators. Cattails and wetland sedges abound. But

the native marsh plants and the animals that rely on them for food and shelter are threatened by the invasive grass *Phragmites australis*, or common reed, often just called *Phrag*. The species was introduced in the marsh about 30 years ago and slowly expanded to cover more than seven acres of its surface.

### A collective effort

Most of the Phrag found along Parkers Creek is the European invader, although scientists from the Smithsonian Environmental Research Center have identified at least one patch that they believe is native (see sidebar). DNR joined forces with the Chesapeake Bay Field Office of the U.S. Fish and Wildlife Service and the Maryland Department of Agriculture, to control the invader, supported by generous grant funding from the U.S. Forest Service.

Our team included experienced driver Conor Bell from CBO, Maryland Department of Agriculture weed control staff, certified commercial pesticide applicator Yousuf Nejati of EQR, Inc., and me. We met to get started early on a September morning. The best way to reach the infestation was to drive an amphibious all-terrain vehicle (ATV) across the marsh surface (the tracks spread out the vehicle's weight, lessening any damage

## PHRAG FACTS

Phrag is an *invasive species* — a plant, animal, or pathogen that is non-native (or exotic) to the local eco-system, was introduced either purposefully or accidentally by people, and can cause ecological, economic or human harm.

While Phrag grows naturally all over the globe in temperate climates, there are two genetic types present in Maryland: native and introduced.

Preserved rhizomes from New England marshes show that the native variety was present on the Eastern seaboard 4,000 years ago.

It is a well-behaved and increasingly uncommon member of the freshwater marsh community.

The invasive variety is Eurasian, introduced to North America via 18th century sailing ships. Once established on the East Coast, the introduced Phrag spread west, and now occurs throughout the United States. It has largely replaced the native variety, especially in disturbed areas like rights of way and roadsides.

Common reed is allelopathic — meaning it exudes a chemical, called gallic acid, through its roots, which disintegrates a protein in adjacent plants. Without that protein, neighboring plants can't support themselves, and they die. It spreads primarily by thick rhizomes (pronounced rye-zohmz) — underground stems that extend away from the parent plant, put down roots and send up new shoots.

A dense patch of this plant blocks water flow, raising the marsh surface through its intertwined root system and fallen decaying stalks. Native wildlife frequently leaves an infested marsh due to a loss of food or suitable habitat.

to the terrain) from high ground on the adjacent BGE power line right of way. With permission to use the right of way we parked our trucks and water tank and mixed the approved herbicide there.

We timed the application to avoid disrupting animals or plants. The Phrag was so dense that almost no other plants grew

within the patch, so we were certain the herbicide would be applied to the invasive species and nothing else. We prefer not to use herbicides for invasive plant control if possible, but when an infestation is too big to manage by hand, carefully chosen and properly applied herbicides are an effective way to get the job done.

### A snag with the Phrag

Getting the job done on this site, however, turned out to be, well, complicated. Minutes after the ATV started down slope to the marsh, it stopped turning. Conor was able to drive only in a straight line, so navigating the marsh's twists and turns became impossible. We were stuck.

We decided to retrieve another ATV and resume work the next day. We had to drive all the way to Cambridge to borrow it. I was at the local lumber yard in the morning before the doors opened to buy the 2x6s, rope and a hitch extender we needed to outfit the second ATV. On site, we made a solid platform in the ATV bed to support the spray tank and strapped it down. We fit the pump onto the hitch extension and secured it with additional rope. Finally we were ready to spray.

Conor and Yousuf took off towards the marsh. Going over a log hidden in the grass, the vehicle bounced and got stuck. When the men got it free, they found they could no longer turn left. Another ATV that wouldn't turn!

But the spray team was determined to get the job done. They made their way

across the marsh and rearranged their spray route for only right hand turns. They turned on the pump and began to spray. When they returned to mix another tank of herbicide, we discovered the problem — a fold in the thin metal tab plate that held the steering handlebars in place. Since Yousuf grew up on a farm and can fix just about anything, we used just the tools we had on hand and straightened out the kink well enough to free the right brake.

With a functional ATV and a full tank of herbicide, we were back in business! It took most of the day to do, but they covered the entire seven acres of Phrag. For the first time in the history of the Parkers Creek marsh infestation, we were fighting back.

### The next steps

A follow-up visit this past May showed the project's success, but also how much more work there is to be done. Most of the seven acres of *Phragmites* is dead. There is some regrowth at the edge of the creek, and a huge layer of thatch — dead Phrag culms and roots — that must be removed. This is usually done through a prescribed burn. Carefully planned and executed the low-level fire burns off the dead plant material during the winter and opens the marsh surface for natives once again. We're working on the plans for that now. ■

[dnr.maryland.gov/wildlife](http://dnr.maryland.gov/wildlife)

**Kerrie L. Kyde** is the Invasive Plant Ecologist for DNR's Natural Heritage Program.



Yousuf stands among *Phragmites australis* close to 12 feet tall.



Conor and Yousuf fix the ATV.



Ready to go!



Yousuf treats the Phrag with an aquatic approved herbicide.



Phragmites flower head



Phragmites root showing rhizomes





Millie Green

# INVASIVE DELICACIES

## Blue & flathead catfish

By Joe Evans

The first thing to know about blue and flathead catfish is that they are delicious. (Check out [marylandseafood.org](http://marylandseafood.org) for recipes!) The next important fact is that you are being environmentally helpful when you catch, cook and eat them.

### An appetite for the Chesapeake

Blue and flathead catfish are invasive species not native to Maryland. They were brought to Virginia in the 1970s and 80s from waters west of the Appalachian Mountains like the Mississippi River before biologists fully understood the impacts of non-native, invasive fish.

While blue catfish are now in most of the major tributaries of the Chesapeake Bay, flatheads have found ideal conditions in the Occoquan and lower Susquehanna Rivers. Recently, they have turned up in the nontidal Potomac River near Williamsport.

Voracious predators, blue catfish dominate other fish populations wherever they take hold. They are opportunistic

feeders that grow to enormous sizes. The largest one recorded was 143 pounds, caught on a North Carolina lake in 2011. Locally, the Virginia and Maryland records are a 102-pound fish caught in the James River in 2009, and an 84-pounder caught in the Potomac in 2012, respectively.

The National Oceanic and Atmospheric Administration categorizes these fish as invasive because they are “alien species whose introduction does or is likely to cause economic or environmental harm.” The Chesapeake Bay Program and the Atlantic States Marine Fisheries Commission have recognized the need to address the threat to native species by working to reduce the invasives’ ranges and populations.

### Curbing that appetite

As part of an awareness campaign developed by DNR, signs identifying the fish and cautioning anglers of their potential to do harm have been posted at

more than 150 water access points across the State.

While catfish certainly expand their range by swimming and reproducing, anglers can also cause them to spread by catching them in one body of water and releasing them in another. DNR encourages anglers to keep all blue and flathead catfish they catch, except for those out of the Patuxent River with pink tags, which are part of a Smithsonian Environmental Research Center survey.

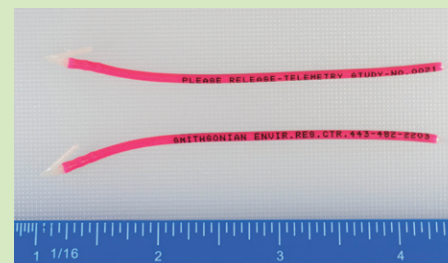
It’s important to understand that transporting fish from one body of water to another is illegal in both Maryland and Virginia, and the fine for moving them is up to \$2,500. The number to call to report any suspicion of illegal transport in Maryland (including blue and flathead catfish as well as northern snakeheads and crayfish) is 800-635-6124.

### Turning invasives into positives

Both blue and flathead catfish as well as the northern snakehead are eligible



Identification signs posted statewide



Smithsonian tags, indicating the fish included in the Environmental Research Center survey

species in a new Invasive Species Award component of the Maryland Fishing Challenge. The fish must be kept to qualify for a chance to win a prize.

Anglers may enter by posting their catches on the Invasive section of the DNR Angler’s Log ([dnr.maryland.gov](http://dnr.maryland.gov)); by catching a new State record; or through the DNR Angler Award Program. Blue catfish must measure at least 40 inches,



Angler shows off a pair of blue catfish.

Charles Vinson

and flatheads must measure at least 34 inches.

Multiple entries are allowed, but an individual fish can only be entered once. DNR will randomly select the prize winners in September. Learn more at [dnr.maryland.gov/fisheries/challenge](http://dnr.maryland.gov/fisheries/challenge) ■

**Joe Evans** is the Communications and Public Affairs Coordinator with DNR’s Fisheries Service.

Because catfish can accumulate chemicals in their tissues as they grow, The Maryland Department of the Environment provides consumption guidelines on how to enjoy eating these invasive catfish while minimizing health risks.

Maryland Fish Consumption Advisories					
Statewide Fresh Water, Estuarine and Marine Waters					
Recommended Meal Size: 8 oz - General Population and Women; 3 oz - Children					
NOTE: Consumption recommendations based on spacing of meals to avoid elevated exposure levels					
1 <b>Women</b> = of childbearing age (women who are pregnant or may become pregnant, or are nursing)					
2 <b>Children</b> = all young children up to age 6					
♥ = Fish contains more than 1g beneficial fatty acids in a fillet the size of 2 decks of cards					
Contaminant present in fish: * Mercury    Δ PCBs    + Pesticides					
Species	Waterbody		Recommended Meals/Month		
			General Population	Women <sup>1</sup>	Children <sup>2</sup>
 Blue Catfish	301 Bridge to DC Line <sup>Δ</sup>	12-15"	4	4	4
		15-24"	2	2	1
		24-30"	1	1	1 every other month
		>30"	Avoid	Avoid	Avoid



Flathead catfish

David Wagner



# Oyster Enforcement

## Maryland cracks down on poachers

By Candy Thomson

In a small, neat courtroom on the Lower Eastern Shore, Maryland natural resources law enforcement took a leap forward in March, when a judge decided that seeing was believing.

“It is clear to this court that you were in and out of the sanctuary, oystering,” Somerset District Judge Paula Price told two watermen as she held a picture documenting the illegal movements of their vessel.

The image was the product of a radar and camera system known as MLEIN — the Maritime Law Enforcement Information Network — that debuted last October at the start of Maryland’s oyster season.

After reviewing the MLEIN evidence and the lengthy records of the two watermen before her, Judge Price ordered the vessel’s captain to pay a \$1,000 fine — \$550 above the preset fine — and the mate to pay a \$450 fine.

### A watchful eye

For Natural Resources Police officers on the water, MLEIN provides another set of eyes, seeing beyond the horizon and standing watch as an invisible sentinel over a fragile resource.



Using a State Police helicopter, NRP caught four watermen harvesting oysters from a protected area in Somerset County in March.

NRP has help from above too. A partnership with Maryland State Police Aviation resulted in 17 flights over Eastern Shore oyster beds by state-of-the-art helicopters during the six-month season that ended March 31. An infrared camera housed in the nose of aircraft allowed NRP observers to watch activity and read identifying lettering on boat hulls as far away as 12 miles.

“MLEIN and the State Police flights not only help our officers make cases, but also act as a deterrent,” says Col. George F. Johnson IV, NRP superintendent. “The days of poachers using lookouts to shadow our officers and provide warnings are over. You can’t give warnings for what you can’t see.”

On nearly a half-dozen occasions, MLEIN helped officers track commercial vessels illegally working in oyster reserves and sanctuaries. On March 14, a State Police helicopter with an NRP observer aboard directed officers in a patrol boat to a remote site on the Lower Eastern Shore where three boats were harvesting oysters from a protected area.

All told, the new technology helped NRP officers charge 17 watermen with

poaching last season. The cases are now working their way through the legal system and those found guilty also are facing possible DNR administrative action in the form of license suspension or revocation.

For example, in March DNR revoked the commercial license of a Queen Anne’s County waterman who was caught poaching six times and received 16 citations. He is now banned from working in any aspect of the commercial fishing industry. In another case, an administrative law judge upheld the permanent license revocation of a Dorchester County waterman, pending a potential court appeal.

“The radar and helicopters will never replace officers who go out, day and night, in all kinds of weather to enforce our laws,” says Johnson. “You still need officers to stop boats, inspect catches, visit wholesalers and write tickets. That won’t change. But the new technology shrinks the neighborhood we patrol.”

### Rebounding results

The impetus and focus comes from Governor Martin O’Malley’s signature Oyster Restoration and Aquaculture Development Plan. The blueprint contains a robust enforcement component that begins on the water with a ticket and ends in local courtrooms, where judges schooled in natural resources laws handle the cases.

“Most judges don’t know about oysters. They don’t understand how much money the Governor has put into oyster conservation,” District Court Chief Judge Ben Clyburn told the Maryland Daily Record newspaper. “Now they realize how important [poaching] is and how dangerous it is.”

It was Clyburn, an avid angler, along with Johnson and the Attorney General’s Office who devised the natural resources-



An NRP officer loads undersized oysters by the bucket to be returned to an Eastern Shore sanctuary after the largest bust in recent history this past January.

specific district court docket plan. Anne Arundel County ran the pilot program in 2010 and now 18 of 23 Maryland jurisdictions have fishing, wildlife and forestry cases clustered on the same day each month.

“It has made a difference,” Johnson says. “Judges get to know the bad actors and handle those cases accordingly. Repeat offenders are learning that the old way of doing business — a small fine and slap on the wrist — will soon be a thing of the past.”

But enforcement is just part of the story.

The O’Malley restoration plan has nearly tripled the size of oyster sanctuaries located in quality habitat from 9 percent to

24 percent. It has spurred aquaculture by increasing available Bay bottom for lease and streamlining the permitting process.

The Governor’s 2015 capital budget includes \$7.3 million for restoration work in Harris Creek and Little Choptank River sanctuaries, using fresh-shucked and fossilized shell to rebuild oyster bars. When completed, up to 371 acres of oyster habitat in Harris Creek and 342 acres in the Little Choptank will have been directly restored to serve as a haven for the iconic Maryland species.

Oysters are responding. Maryland’s 2013 Fall Oyster Survey indicates the oyster biomass index, a combined measure of wild oyster abundance and size, has more than doubled since 2010, reaching its highest point since this type of monitoring began in 1985. Preliminary harvest reports for the past season have already surpassed 425,000 bushels — with a dock-side value in excess of \$13 million — the highest in at least 15 years.

The oyster industry is responding favorably



The seized oysters ranged from six to 46 percent undersized.

as well. Maryland has issued 310 shellfish aquaculture leases, representing a total of 3,578 acres earmarked for oyster production in the rivers and embayments of the Chesapeake Bay.

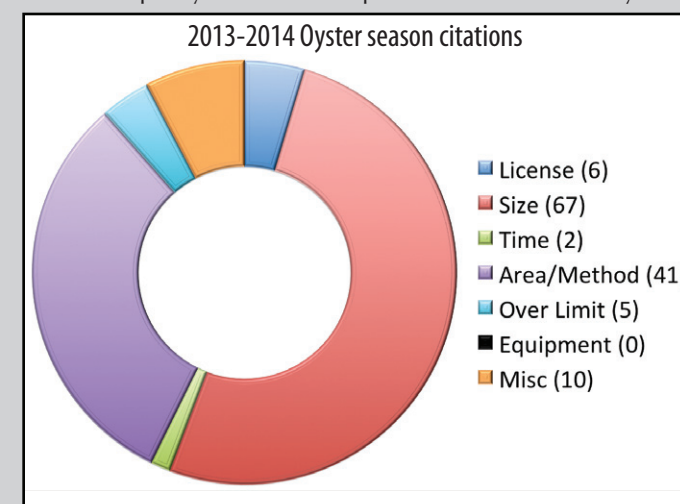
But the work is far from over.

“It’s really a tale of two Bays,” says Michael Naylor, DNR Fisheries Service assistant director. “The lower Bay is rebounding and there are really encouraging signs. But there was no harvest this season above the Bay Bridge, where we still have much work to do.”

“The analogy I like to use is that your whole lawn has died except for under the big maple tree,” Naylor continues. “That remaining patch of lawn looks good, but it’s going to take a lot of direct attention and intervention to bring the rest of it back. That’s what we’re working on to restore both the oyster population and the health of the Bay.” ■

[dnr.maryland.gov/nrp](http://dnr.maryland.gov/nrp)

Candy Thomson is NRP’s Public Information Officer.



NRP officers cited 131 violations.





# WILD SHOT

From Greek and Latin origins, *Callinectes sapidus* translates to, “beautiful swimmer that is savory.” We all know the savory part is true, but just how far does the blue crab swim? It claims all parts of the Chesapeake as its home, choosing shallow waters and grasses during warm weather and the Bay’s depths for the winter. Additionally, males (*jimmies*) prefer fresh water while females (*sooks*) tend to inhabit saltier areas. ■



# HERE COMES THE SUN

## Summer in the Free State

By Lauren Dorrell



### AccessDNR: There's an app for that!

How can you reserve campgrounds and plan activities, locate the nearest boat ramps, report harvests in real-time, and identify fish all in one place? With the AccessDNR mobile app! This free resource — available for Apple and Android devices — puts the best of Maryland's great outdoors right at your fingertips. Supplementing the DNR website, the app will also provide you with up-to-date regulations and licensing information, as well as breaking news. So, what are you waiting for? Download today!

### Camp out

A tent in the woods, an RV on the shore, a cabin in the mountains — it doesn't matter how you camp, it only matters *that* you camp!

Maryland boasts a wide range of extraordinary public lands, from the sandy beaches of Assateague to the secluded hills of Cunningham Falls to the historical hallmarks of Fort Frederick. Many Parks offer amenities for large group gatherings and some are even pet-friendly.

Pick the perfect Park for your visit at [dnr.maryland.gov/publiclands](http://dnr.maryland.gov/publiclands)



### Take a class

School may be out, but there's plenty to discover from our natural world! DNR presents many opportunities to learn about wildlife, learn a new hobby or perfect a skill.

Fun for the whole family, *Scales and Tales* Programs affords visitors the chance to see birds of prey and reptiles up close. *Becoming an Outdoors-woman* workshops provide a casual setting to develop a myriad of skills — including kayaking, outdoor cooking, photography, bird-watching, hunting and fishing. *Maryland Master Naturalist Training* equips environmental enthusiasts with a fun but rigorous course on the State's natural history so they can volunteer, teach and encourage others to go green.

Additional information and more programs are listed at [dnr.maryland.md.gov/education/completelist.asp](http://dnr.maryland.md.gov/education/completelist.asp)

DNR reminds all citizens and visitors to stay safe this summer.  
Know your surroundings, drink plenty of water and have emergency supplies on hand.



### Take a hike

With more than 1,000 miles of trails statewide, you can do a lot more than take a leisurely nature walk (though that's a great option in itself!)

Where allowable, you may consider biking or horseback riding, driving an off-road vehicle or geocaching. Along the way, you may come across historic bed and breakfasts and unique attractions, or water access points for fishing and other activities. Whatever your route, be sure to bring a camera and binoculars! Set your sights today at [dnr.maryland.gov/land/MD\\_Trails](http://dnr.maryland.gov/land/MD_Trails)



### Ride a wave

You may think the only way to get out on the water is by boat — and that's fine — but have you tried any other sports well-suited to Maryland waterways?

Water trails across the State provide access to creeks, rivers and open water for kayaking, canoeing, jet skiing, rafting and more.

Rising in popularity, stand-up paddle boarding balances a degree of challenge with a unique perspective of the scene around you. No matter your preference (or the splash level), remember to always wear a lifejacket. Learn more at [dnr.maryland.gov/boating/watertrails](http://dnr.maryland.gov/boating/watertrails)



### Catch a fish

In a State that has nearly 2,700 square miles of water containing more than 60 recreational fish species, there's no excuse not to spend a day casting a line!

Find a favorite fishing hole, set sail from your own boat or reserve a spot on a chartered vessel. The Bill Burton Pier — open 24/7, year-round — boasts some of our most varied fishing opportunities, including perch, bass, trout, croakers and catfish. Group events such as youth rodeos serve as great introductions to kids and their families. For more casual anglers, free fishing days occur on the first two Saturdays in June and July 4 when no licenses are required.

Guidelines, regulations, angler logs and more ideas can be found at [dnr.maryland.gov/fisheries](http://dnr.maryland.gov/fisheries)

Lauren Dorrell writes and designs for DNR's Office of Communications.





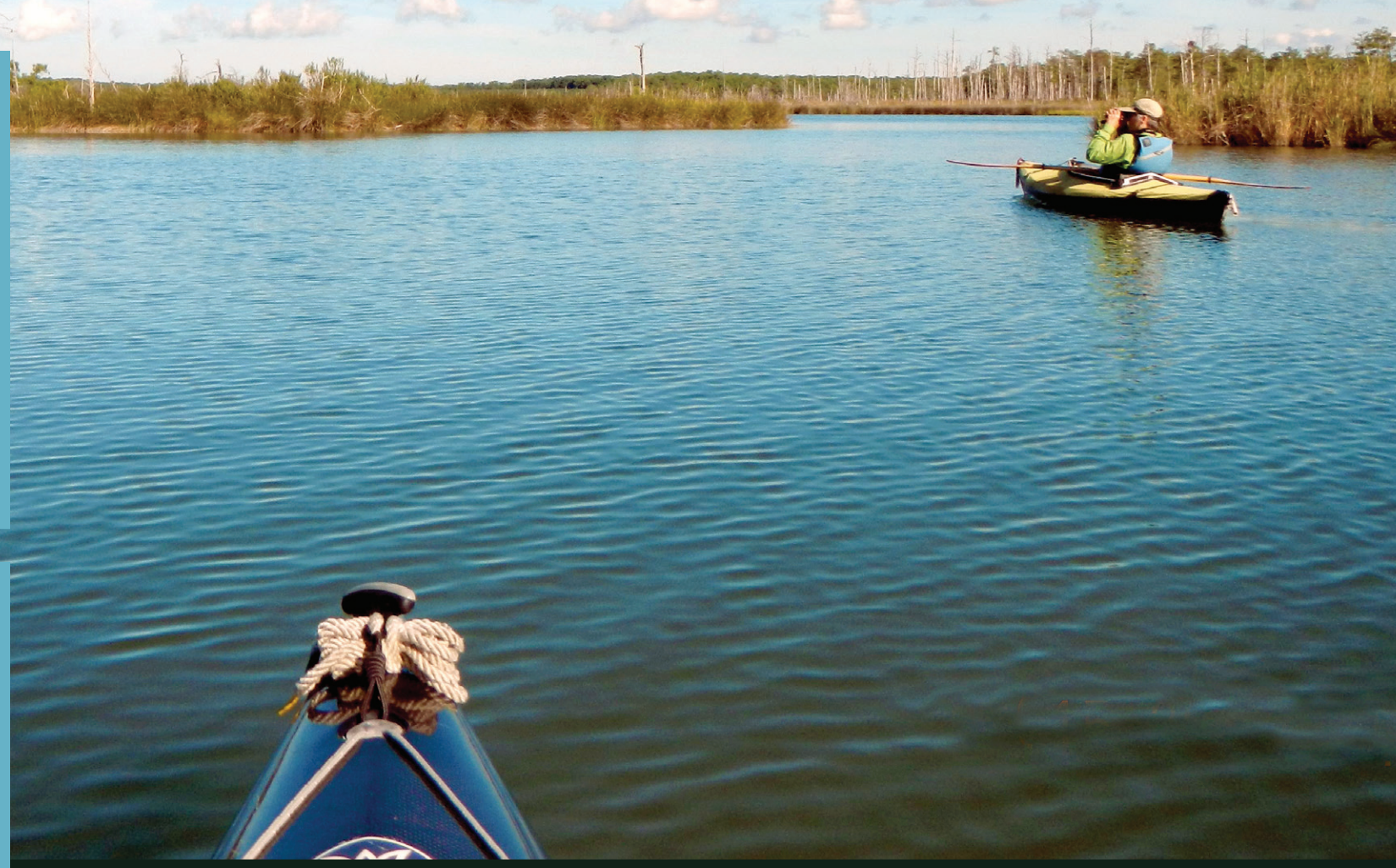
Vicki Dodson

Osprey perched at Tuckahoe State Park

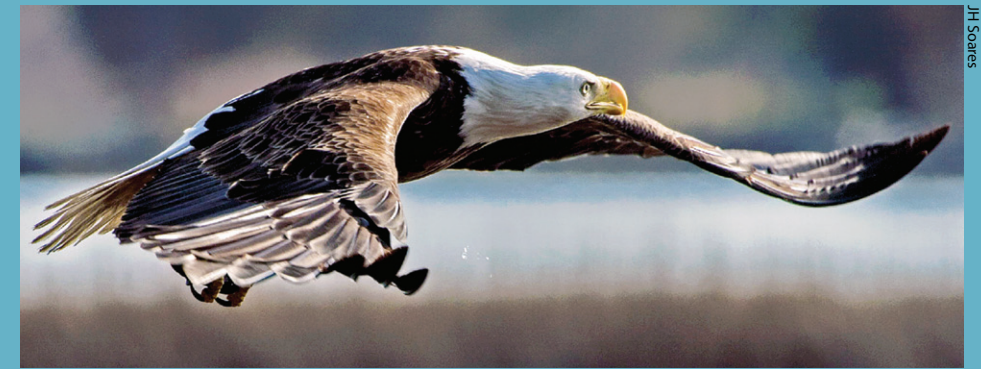


Dick Blystone

Great blue heron



Vicki Dodson



JH Soares

Bald eagle flying over Taylors Island



Christine Edwards

Great blue heron fishing

# Boating in Birdland

## Aquatic charm school

By Vicki Dodson

We see them every summer weekend: a stream of cars heading up and down the interstates with a kaleidoscope of kayaks and canoes strapped on top. Paddlers may not be surprised. The attractions of the sport are obvious and include spending time with family or friends, enjoying a little exercise and getting back to nature. Sometimes that means getting a little too close to it though — with potentially serious consequences for wildlife.

According to the National Sporting Goods Association, the number of U.S. paddlers rose from 3.5 million in 2001 to 7.1 million in 2011. That is more than twice as many people in one decade, and many of them have discovered the charms of the Chesapeake Bay and its tributaries.

Less expensive boats, better gear, more information and new launch sites

now allow access to remote areas that were once the exclusive domain of nature — and our worlds overlap more frequently. We spot a heron fishing at the shoreline just ahead. In a quest for a closer look or photograph, we paddle toward the bird, which abruptly *flushes* (flies away). The result? The heron just missed lunch and maybe we're left feeling a little disappointed.

As paddlers, our love of water-based adventure puts us in regular contact with *piscivorous* (fish-eating) birds. We have many in our region: Herons, cormorants, kingfishers, egrets, even pelicans make their homes here. The Chesapeake also boasts one of the highest concentrations of bald eagles outside of Alaska.

Ospreys play a starring role in our region, because the largest breeding population of this species *in the world* sets up housekeeping here. Since these birds

are found everywhere except Antarctica, that is quite an endorsement of the Chesapeake. After making tremendous migrations — some from as far as the Amazon — Ospreys quickly get down to the business of raising a family. Not surprisingly, the summer season is a sensitive time. Mating, egg-laying and brooding coincide with increased summertime human activities and greater risks for disturbance from boaters.

### It's a big bay, what's the big deal?

Research shows that human disturbance of birds can cause nest failures, area abandonment, and population declines. When nesting birds flush, unguarded eggs or chicks can become quick and easy pickings for gulls and crows.

Predation is not the only threat though. Disturbed birds waste valuable energy fleeing, energy that would be better spent

on feeding. Eggs and nestlings may also be inadvertently kicked out of the nest by a parent in a panic to get away.

### So what can we do?

Perhaps a little refresher course in paddling etiquette might be in order. Consider it aquatic charm school. One of the best things about paddling is seeing big, dramatic birds, and the desire to approach them is strong. However, there is a direct correlation between the size of birds and their tolerance for humans: bigger birds are more sensitive to disturbance than smaller birds. They simply don't know that we're paddlers, not predators. Fortunately, there are some easy ways to let them know.

Two highly effective methods are to simply avoid paddling directly toward birds and to give them space. Use binoculars or a camera with a zoom lens (waterproof

is best!) and enjoy the show. Sometimes birds will warn us when we've entered their "discomfort zone."

They may stare at us, appear agitated, crane their necks or even scold, but sometimes it's not that obvious. Err on the side of caution. If a bird changes its behavior — especially if it is nesting — paddle away quickly.

Anxiety and alarm calls aren't the only indications that a bird feels threatened. Nesting parents in particular keep quiet and still because attracting attention may endanger their offspring. Many of us have seen a Canada goose hunker down over her nest and maintain absolute silence as if to say, "Don't notice me," when only a few weeks earlier, this same goose would have noisily escorted you out of her territory.

### How close is too close?

Researchers determine avian buffer zones based on *flush distances*, which are measurements of how closely birds can be approached by humans prior to flying away. These measurements gauge

a species' tolerance for people and have been useful in establishing water trails and birding areas. These average flush distances were obtained in the Chesapeake watershed: Bald Eagles, 55 yards; Ospreys, 50 yards; Great Blue Herons, 40 yards.

Based on measurements like these, some researchers recommend the following buffer zones: Bald Eagles, 250 yards; Ospreys, 150 yards; Great Blue Herons, 165 yards. Individual tolerance varies a bit, but if we consider that nesting birds require even more space, it's obvious why we need binoculars.

That's it — we're finished Aquatic Charm School! We're ready to hit the water and have come to the right place. The Chesapeake and its tidal tributaries offer paddlers more than 11,600 miles of shoreline to explore, and they are teeming with birds. Let's make sure that those birds have as good a day on the water as we will. ■

[dnr.maryland.gov/boating](http://dnr.maryland.gov/boating)

**Vicki Dodson** is a guest writer, avid birder and long-time paddler.





Jeff R. Bramble



George Jett

In winter, male American goldfinches (left) change their plumage to look like females (above) so that they are not so easy for predators to find.

### A loud difference

In some ways, it is a time of year when we are most reminded of differences between male and female birds. We marvel at the vibrant colors of certain species: the flaming red of male scarlet tanagers, the brilliant blue of male indigo buntings, and the glowing yellow of male American goldfinches, while their more dull-colored mates tend to escape our notice. Male songbirds like thrushes, warblers, vireos, wrens and orioles fill the early morning hours with complex songs, trills and flute-like tones as their mates, in large part, utter only the simplest of notes.

Here at DNR, when counting birds on State lands, we use male bird song to indicate the presence of particular species rather than needing to see the bird for identification. This can be especially critical in areas of dense forests or shrubs, marshes, and for birds that call at night.

### Consulting Darwin

Nature is full of examples of physical differences between the sexes, including extreme cases like the male peacock's tail, which is larger and more eye-catching, or the elaborate plumage of male birds of paradise. Charles Darwin himself observed these extreme male characteristics and other differences between the sexes in his travels and throughout his studies. He wondered what could cause these conditions to persist, especially in the face of his theory of natural selection, published in 1859.

How could males retain characteristics, like extremely long tails and colorful

plumage, which actually make it more difficult to survive? What could explain an extreme example like the extinct Irish elk, the largest deer species ever, whose males had antlers spanning up to 12 feet and weighing over 90 pounds?

Darwin attempted to answer these questions in his second book *The Descent of Man, and Selection in Relation to Sex*, published in 1871. Within those pages, he introduced the concept of what we now call sexual selection — the influence of both competition between males for mates and female choice of mates on behavior and characteristics.

For example, if females prefer to mate with males that have long tails, and males pass down their longer tails to their sons while females pass down a preference for longer tails to their daughters, then longer tails will be favored in the population. This could lead to tails getting longer and longer through the generations. It might even be that females are choosing higher quality mates when they select a male with a long tail, who must be extra special to produce a long tail and to thrive with this impediment.

These ideas have continued to structure our understanding of male-female differences in the animal world, although explaining these differences is now recognized to be more complicated. For example, some differences between males and females may be more related to camouflage than competition for mates, such as dull-colored female birds being less likely to draw attention to themselves or their eggs while they sit on nests.

### A different tune

Until recently, the songs of male birds were thought to be a clear result of the traditional view of sexual selection. It has been thought that males have developed more complex vocalizations in order to better compete for mates, and because males with these lovely songs are more likely to be selected by females.

This is based, however, on the assumption that females do not sing. A study published in March 2014 in the journal *Nature Communications* challenges this view of the dominance of male birdsong. There are more than

4,000 species of songbirds in a total of 112 families in the world. Researchers from the University of Maryland, Baltimore County (Karan Odom and Dr. Kevin Omland) worked with researchers from Australia and the Netherlands to investigate the presence of song in 323 species from 44 families of songbirds across the globe. Using published literature and their own experience, they found that female song was in fact present in 71 percent of the species investigated, including representatives from 73 percent of the families!

This result was a surprise largely because previous studies have been biased — they did not look at songbirds in tropical areas and on other continents like Australia. Instead the focus had been on species in North America and Europe that are newer to the evolutionary scene and show a different pattern. Despite not being tropical, Maryland does have a few examples of species with both male and female singers, including the loggerhead shrike, chestnut-sided warbler, northern cardinal and white-eyed vireo.

### Questions and answers

The researchers' finding that many females sing complicated songs raises another question — is female song some-

thing that has only come about in recent times? In order to examine this question, the researchers used genetic information from existing studies to map out how the different species are related to one another, similar to a family tree for species.

The information on female song by species was then added to the ancestry map. This analysis added another piece of the puzzle: common ancestors of our modern songbirds had *both* male and female singers! It appears that over time, species lost the characteristic of female song.

Of course, this raises more questions — why did the ancestral females have song and why did this change? The answer likely includes competition between females for resources, social interactions, year-round territories and other features that are different in tropical areas.

We will have to wait for the results of future studies on female song inspired by these fascinating results for more answers. In the meantime, when we hear that northern cardinal singing in our back yard — remember, it could be the female! ■

[dnr.maryland.gov/wildlife/my.umbc.edu/news/42538](http://dnr.maryland.gov/wildlife/my.umbc.edu/news/42538)

**Gwen Brewer, Ph.D.** is the Science Program Manager for DNR's Wildlife and Heritage Service.



George Jett



George Jett

Both female (left) and male (right) northern cardinals sing, even though the female is less colorful. A recent study found that female song is more common than previously thought.

# The Same Old Song?

## A study of female songbirds

By Gwen Brewer

One can hardly go outdoors on these warmer days without finding oneself in the middle of the avian version of the battle of the sexes, complete with strutting males and coy females.

Tom turkeys fan their tails and gobble, male raptors bring offerings of food to their mates, woodpeckers bob and weave, and male songbirds sing from prominent locations to attract females and lay claim to a territory for breeding.



# MARYLAND IS... SMART, GREEN & GROWING

## Governor O'Malley Signs Climate Change Legislation



House Bill 615 — to establish a Coast Smart Council — was signed into law on May 5, 2014.

To prepare Maryland for the impacts of climate change and extreme weather, Governor Martin O'Malley recently signed two pieces of legislation.

The first, the *Bay Acidification Bill*, will create a Task Force of environmental experts to study the effects of changing chemistry in the Chesapeake Bay and how that will impact our coast and shellfish industry.

The second, the *Coast Smart Council Bill*, will ensure the State follows standards to make safe and fiscally-wise investments when building or updating agency structures located in vulnerable coastal areas.

"As severe weather events grow in size and impact, and our Bay's resources are increasingly threatened, the costs of inaction to our economy, society and environment will grow exponentially," said Governor O'Malley. "This legislation helps us to get out in front of these very real, very important climate issues, and to secure the health, safety and future of our State and its citizens."



Towns such as Crisfield are vulnerable to sea level rise from increasingly intense super storms, such as Hurricane Sandy.



Annapolis Farmers' Market located at DNR



## Shop Home Grown

More than 130 farmers' markets in 23 counties and Baltimore City set up shop at least once a week. Find one near you at [marylandsbest.net](http://marylandsbest.net)!

DNR is again taking part in the Anne Arundel County Farmers' Market, held every Thursday this summer from 3 to 6 p.m. through September 4 at the Tawes State Office Building — 580 Taylor Avenue, Annapolis.

Enjoy delicious fruits, vegetables and homemade goodies, including wine, fresh strawberry popsicles and bread.

Farmers' markets support a more sustainable Maryland by encouraging citizens to buy locally-grown products. This simple act helps cut down on packaging and fuel for transport, utilizes and protects agricultural lands, supports small businesses, and keeps money circulating within the State.

## Maryland Bay Game Now Available

The 17th annual Maryland Bay Game — featuring artwork from the *Color Maryland Green* contest — is now available at local libraries, State Parks, visitor centers and other locations throughout the State.

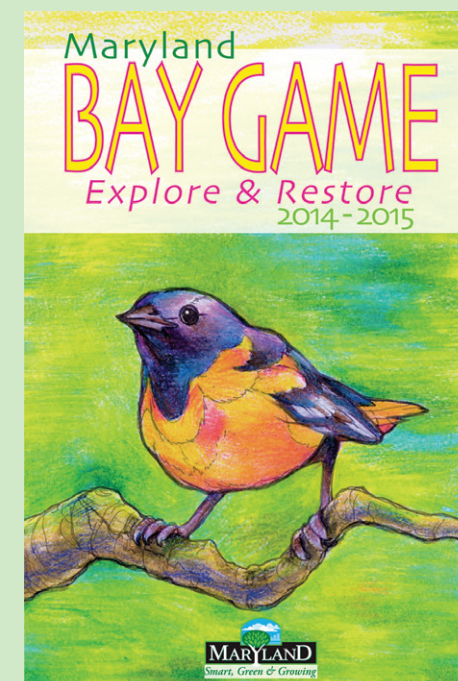
Themed *Explore & Restore*, the 2014-2015 edition focuses on how the health of our streams and the health of the Chesapeake are interconnected.

Within its pages, children and their families will find insight, tips and fun to last all year long. Classic activities include

bingo and coloring, while new games, riddles and experiments demonstrate concepts such as watersheds, stream components and rain gardens.

The book made its debut at the Maryland Association for Environmental and Outdoor Education's annual Green Schools Youth Summit, where Governor O'Malley spoke with 1,200 students and teachers about the importance of restoring the Bay.

[dnr.maryland.gov/baygame](http://dnr.maryland.gov/baygame)



The winning entry from the *Color Maryland Green* contest dons the 2014-2015 Bay Game cover.



Governor O'Malley spends the day with students excited about environmental education.



**GET SOCIAL**  
with  
**AccessDNR**  
Your connection to conservation & recreation in Maryland



[news.maryland.gov/DNR](http://news.maryland.gov/DNR)



Tear Here and Take Home  
**Plant and be counted!**  
Register every tree you plant at  
[trees.maryland.gov](http://trees.maryland.gov)

## Tree Coupons Valid for New Planting Goal

Available online for print, this coupon is worth \$25 off the purchase of one tree with a retail value of \$50 or more at all participating retail nurseries and garden centers.

The discount is taken at the register at the time of the sale, and the back of each coupon must be filled out for every tree purchased.

Species recommendations are listed at [trees.maryland.gov/pickatree.asp](http://trees.maryland.gov/pickatree.asp).

Be sure your tree is counted towards the 150,000 statewide goal by registering each planting.



# SHORT TAKES

For a complete list of events happening in Maryland State Parks, visit [dnr.maryland.gov/calendar](http://dnr.maryland.gov/calendar)



Stephen Badger

**Congratulations to our 2013 Employee of the Year, Mary Taylor of Boating Services!**

## Boat Safely this Summer

With summer upon us, the U.S. Coast Guard and Maryland Natural Resources Police are again urging citizens and visitors to practice safe boating habits.

Did you know that 127 boating accidents last year resulted in 14 deaths and 79 injuries?

Outfit children under the age of 13 with lifejackets and keep flotation rescue devices easily accessible on deck. Make sure to check weather forecasts and take notice of warning signs when on the water. Following safety regulations can mean the difference between life and death.

Keep the 24-hour Chesapeake Bay Hotline handy — 1-877-224-7229 — to report accidents, recklessness, suspicious activity and oil or other hazardous spills.

[dnr.maryland.gov/boating/safety](http://dnr.maryland.gov/boating/safety)



Natural Resources Police keep waters safe.

## Fried Soft Shell Crabs with Summer Salad & Pickled Vegetables (4 Servings) – From Chef James Barrett

### Ingredients

#### For the Soft Shell Crabs

4 large soft shell crabs, cleaned  
1 egg, beaten  
½ cup milk  
1 cup flour, all purpose  
2 tbsp Old Bay  
Salt & pepper to taste  
1 cup vegetable oil

#### For the Pickled Vegetables

Pickling liquid  
2 cup cider vinegar  
2 cup rice wine vinegar  
1 quart water  
1 cup sugar  
2 tbsp sea salt

### Preparation

Clean the soft shell crab by using scissors to cut out the gills, remove the apron and remove the face. Beat egg in a bowl until it is evenly mixed. Dredge the crab in the egg until it is evenly coated. Dredge the crab in the breading until it is covered, season with salt and pepper as desired. Heat oil in fryer or pan to approximately 375 degrees. Place breaded crab in the hot oil and allow 3-4 minutes to cook, until golden brown. Remove crab from fryer using tongs and pat dry with a paper towel to remove excess oil. Toast roll. Place fried softshell, lettuce and tomato slice on bun. Add tartar or cocktail sauce if desired.

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6 clove peeled, sliced garlic  
1 tsp crushed red pepper

### Vegetables

½ lb baby zucchini  
½ lb baby fennel  
½ lb French breakfast radish, washed, tops trimmed  
½ lb watermelon radish, sliced 1/8 thick  
1 red onion, sliced  
6 sprig fresh oregano  
4 bay leaves

### For the Salad

1 cup pickled vegetables  
Mixed greens  
Olive oil, extra virgin  
Salt and pepper to taste



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## Goucher College Receives Award of Excellence

On May 8, the Governor's Park Advisory Commission presented its Award of Excellence to the Goucher College Sarah T. Hughes Field Politics Center in Baltimore for its dedication and commitment to the well-being of Maryland State Parks. Led by Goucher professors, students created and administered a poll to collect information on the experiences of Park visitors.

Conducted last October in partnership with the Park Service, the poll queried a random sample of 665 State residents. Results revealed historic areas are the biggest draw, followed by hiking and

fishing; families with children are more likely to visit than those without; nearly 70 percent of those polled visited a State Park in the past year, the majority of whom rated their experiences highly; and that a lack of free time was the most common factor preventing more trips.

"Working with the Maryland Park Service on this project was a tremendous experience for our students and it is simply wonderful to see Goucher's commitment to experiential learning translated into useful policy research," says the Center's Director Dr. Mileah Kromer. "We are elated to receive this award."



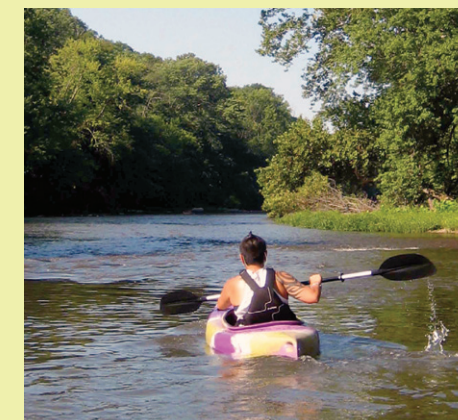
Goucher

Goucher College students and professors accept the Award of Excellence.

## Explore Monocacy River with New Water Trail Guide

Avid paddlers of Fredrick County's rivers and streams can now easily navigate the Monocacy River with this new scenic guide. The durable booklet helps water lovers locate access points and services along the way, and includes information on nearby natural, historic and cultural attractions.

To request a copy, call 301-600-2936, or pick one up at the Frederick County Division of Parks and Recreation Office; 355 Montevue Lane, Suite 100; Frederick, MD 21702.



DNR

Kayaking on the Monocacy



Jonathan McKnight

Pocomoke River Wildlands

## Maryland Expands Wildlands System

The General Assembly passed legislation this spring to increase the State's Wildlands system by 50 percent, under the leadership of Governor Martin O'Malley. The newly designated 22,000 acres of sensitive State-owned lands are now permanently protected as the result of an extensive public input process.

Wildlands are our last remaining untouched landscapes, supporting sensitive ecosystems and many rare and threatened plants and animals. By prohibiting motorized vehicles, bikes and other activities that can disrupt wildlife or destroy natural communities, outdoor enthusiasts can now enjoy fishing, trapping, hiking, horseback riding, hunting, birding, backpacking and more in 9 new and 14 expanded sites.

Under this designation, these primitive areas — about one percent of Maryland's total land area — will be forever protected, remaining unchanged today, tomorrow and well into the future. This landscape will not only intrigue nature lovers, from birdwatchers to geologists to hunters, it will also support a smarter, greener Maryland.

[dnr.maryland.gov/land/stewardship](http://dnr.maryland.gov/land/stewardship)





# TAKE YOUR BEST SHOT!

Novice and professional photographers have until

**AUGUST 30**  
to enter DNR's 2014  
PHOTO CONTEST

**ONLINE OR BY MAIL**

7 first and second place winners will be featured in the  
2015 *Maryland Natural Resource* Calendar

1 GRAND PRIZE WINNER  
will win \$500, a 2015 Park Passport and more!

Rules, entry forms and prize information at [dnr.maryland.gov/photocontest](http://dnr.maryland.gov/photocontest)



DNR@WORK

## Stephen VanRyswick

The Sediment Expert

By Darcey Heflin

Growing up on a farm in Southern Maryland was the foundation of Stephen VanRyswick's future career with the Maryland Geological Survey (MGS). Stephen absolutely loved being outside and exploring. Taking care of the family farm provided him with consistent exposure to hard work and the elements.

"Working on a farm from an early age kept me busy, focused and helped me understand what constitutes a good work ethic," Stephen recalls. After tending to his family's estimated 120-acre farm, he knew his future career would have to incorporate Maryland's natural world.

Indeed, this upbringing led Stephen to his role as a Geologist Lead at MGS — a scientific and investigative agency responsible for analyzing and inspecting the State's water resources; topography; environmental, coastal and estuarine geology; and mineral resources.

When asked about a typical day in this role, Stephen responds that it's *never* the same, which is what he loves most about his job. One day it reads more as a desk job: he spends the day in the office, writing proposals and making phone calls about grants and funding. Another day he may find himself on the Eastern shore collecting data and working on sand and shore restoration in Ocean City. He thrives on this constantly changing atmosphere and who can blame him?

While Stephen has carried out many significant projects as the Geologist Lead, he is most proud of his work with oysters. He carefully locates, identifies and maps out habitats in the Bay that have a *suitable substrate*, or a firm bottom, to support oyster shell. He supplies the exact locations of these habitats to restoration groups, who then place *spat* (baby oysters) there. Placing the shell on habitat known

to be suitable and highly productive allows for greater odds of survival success, which ultimately increases the population.

Additionally, as the eyes and ears to our underwater landscapes Stephen also uses *cores* (2-12 feet sediment samples taken underwater with a tube) to study a variety of areas in Maryland.

He has done metal analysis of sediment behind the Centreville Dam. In a similar project, he assisted with the examination of the Patapsco River to determine the percentage of fine material that would be released if either of the two dams within the River was removed. (To date, one of the two dams in the River has been taken out.) Recently, he studied the amount of sediment in Deep Creek Lake.

Stephen's interest in sediment began in college. He attended the University of Maryland College Park where his studies focused on soil, water and water quality and natural resources. He graduated with an environmental science degree.

During an awarding internship at the Morgan State Lab in Southern Maryland, he gained extensive experience in boating, microscope identification and a *lot* of meticulous count work and lab time.

After graduating, he came across an opening at MGS. Stephen cheerfully remembers, "I just happened to be in the right place at the right time."

The job posting was looking for someone who had knowledge of soil and sediments. The role was clearly right up Stephen's alley. Eleven years later, he



continues to be extremely successful in his work and dedication to MGS.

When Stephen isn't studying the Chesapeake Bay Watershed, he finds solace in going back to his roots and working on his family's farm. He brightens at the mention of his 5-year-old son, Matthew, with whom he adores spending most, if not all, of his free time.

When asked of his favorite place to visit or things he likes to do in Maryland, he is completely stumped: "It's hard to really narrow it down when so much interests me. I thrive on variety."

"Stephen is the jack-of-all trades and master of many," according to his supervisor Bob Conkwright.

Variation may just be the common denominator in his success. ■

[mgs.md.gov](http://mgs.md.gov)

**Darcey Heflin** was an intern with DNR's Office of Communications.





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